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EXAMINER

DIVECHA, KAMAL B

ART UNIT	PAPER NUMBER
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2151

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/915,678

Applicant(s)

LOGUINOV, DMITRI

Examiner

KAMAL B. DIVECHA

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-24 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**Response to Arguments**

Claims 1-24 are pending in this application.

**Claim Objections**

The claim objection presented in the prior office action has been withdrawn.

**Claim Rejections - 35 USC § 112**

The 35 USC 112, second paragraph rejection is maintained in light of the following reasons:

First, the recited limitation (1a) discloses a plurality of data packets and limitation (1b) recites “said data packets”. It is unclear which one of the data packet the applicant is referring to and/or which one of the plurality of data packets applicant is referring to.

- Secondly the acronym such as RTT used in the dependent claim renders the claim indefinite because the use of reference characters in the claims has no effect on the scope of the claims. See MPEP § 608.01 (m) .

Third, the phrase “may” is considered indefinite because the resulting claim does not clearly set forth the metes and bounds of the patent protection desired.

Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

**DETAILED ACTION**

**Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation “said data packets” in claim. There is insufficient antecedent basis for this limitation in the claim.

The phrase “RTT” in claims 1-24 renders the claim indefinite because the phrase would be unclear to the one of ordinary skilled in the art.

Claim 2 recites the limitation “said RTT”. There is insufficient antecedent basis for this limitation in the claim.

In claim 4, the phrase “may” renders the claim indefinite because it is unclear whether the limitation is part of the claim or not because the phrase “may” does not distinctly set forth the metes and bounds of the claim.

Claim 4 recites the limitation “said acknowledgement messages”. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation “said predetermined number of said RTT”. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation “said response packet” in the claim (9d). There is insufficient antecedent basis for this limitation in the claim.

Claim 9 is further rejected for the same reasons as set forth in claims 1 above.

Claims 10-24 are rejected for the same reasons as set forth in claims 1-9.

Please Note: the listing above of 35 USC 112, 2<sup>nd</sup> paragraph is provided as an example listing and is not the exhaustive listings of all the 35 USC 112, 2<sup>nd</sup> paragraph rejections. It is up to the applicant to find and correct the rest.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6, 8 and 16-20 are rejected under 35 U.S.C. 103(a) as being obvious over Klemets et al. (hereinafter Klemets, U. S. Patent No. 5,918,002) in view of Mogul (U. S. Patent No. 6,560,243 B1).

As per claim 1, Klemets discloses a method for adjusting a sender rate in a packet communication system to support congestion control between a server and a client, the method comprising the steps of: transmitting a plurality of data packets to said client (col. 2 L40-48, col. 6 L3-5); determining by said client whether one of said data packets is lost over a communication connection from said server to said client (col. 11 L26-45); transmitting a response packet for retransmission by said client if one of said data packets is lost (col. 11 L50-52, fig. 12 item #1250); computing a new sender rate based on a round trip-trip time corresponding to a latency between sending said response packet to said server (col. 6 L7-44, col. 6 L55 to 7 L60, col. 10 L60 to col. 11 L25, fig. 11); receiving the corresponding

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retransmission of said lost packet from said server (col. 2 L53-59, col. 11 L36-55); transmitting said new sender rate to said server in a separate congestion control packet during said communication connection (col. 6 L7 to col. 7 L60, col. 8 L25-45, col. 10 L60 to col. 11 L25, fig. 4, fig. 5A item #514, fig. 5C item #537, fig. 5E item #552 and fig. 11), however Klemets does not disclose the process of including said new sender rate in the transmission of said response packet.

Mogul, from the same field of endeavor, discloses including in a response packet a new transmission rate (fig. 5 and col. 2 L1-13, col. 10 L30-39).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Klemets in view of Mogul, in order to include new sender rate in the transmission of response packet, since Mogul teaches the process of including the sender rate in the response packet.

One of ordinary skilled in the art would have been motivated because it would have employed a mechanism for controlling the senders rate for transmitting the subsequent data packets (Mogul, col. 2 L43-52). It would have also enabled a receiving system to achieve its own bandwidth allocation policy among multiple sources (Mogul, col. 1 L51-55).

As per claim 2, Klemets discloses the process where RTT is determined according to the following steps: transmitting a first packet having a RTT sequence number to said server if one of said data packets is lost; receiving a second packet containing said lost packet in response to said first packet from said server; and calculating said RTT based on a time delay between said first packet and said second packet (col. 2 L49-60, col. 11 L26-55, fig. 12).

As per claim 3, Klemets discloses the process wherein said communication connection between said server and said client comprises at least one of a wireless communication link, a wired communication link, and the combination of a wired communication link and a wireless communication link (fig. 2-3).

As per claim 4, Klemets discloses the process of adjusting by said server, in response to said acknowledgement messages, said new sender rate at which server sends subsequent data packets to said client (col. 6 L7-18), however, Klemets does not disclose the process of including by said client a number of acknowledgement messages, in response to the plurality of said data packets, said new sender rate specifying a transmission rate at which said server may transmit subsequent data packets to said client. Mogul discloses the process of including a new sender rate by a client specifying a transmission rate at which said server may transmit subsequent data packets to said client in a number of acknowledgement messages (fig. 5: shows the acknowledgement message with the rate and sequence number, col. 1 L59 to col. 2 L14, fig. 4). Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Klemets in order to include by said client a number of acknowledgement messages, in response to the plurality of data packets, new sender rate specifying transmission rate at which said server may transmit subsequent data packets to client. One of ordinary skilled in the art would have been motivated because it would have provided the receiver of the system of flows of data packets the capability to control the bandwidth or transmission rate in the network (Mogul, Col. 1 L59-65).

As per claim 5, Klemets discloses the process of determining by said client that one of said data packets is lost if RTT sequence number received from said server is out of order (fig. 12), however Klemets does not explicitly disclose the process of including a field in said response packet a RTT sequence number and said new sender rate. Mogul explicitly discloses an acknowledgement packet or message comprising a sequence number field and new window size i.e. transmission rate (fig. 5 item #186, 188). Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to incorporate the teaching of Mogul with Klemets as stated above in order to include a sequence number and a new rate in the acknowledgement message. One of ordinary skilled in the art would have been motivated because of the same reasons as set forth in claim 4.

As per claim 6, Klemets in view of Mogul discloses the process of adjusting by server said new rate if predetermined number of RTT is detected thereafter (Klemets, fig. 11, col. 6 L3-19, col. 7 L3-6 and fig. 5A item #514), however Klemets does not explicitly disclose the process of including a field in said response packet a CA sequence number indicating the transmission of said new sender rate to server. Mogul discloses the process of sending an acknowledgement packet including a sequence number indicating the new rate to server (Mogul, fig. 5). Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Klemets in order to include a field in response packet a control action sequence number indicating the transmission of sender rate to server, since Mogul discloses and teaches the response packet having a field for sequence number. One of ordinary skilled in the art would have been motivated because of the same reasons as set forth in claims 4.



As per claim 8, Klemets discloses the process wherein said computation of said new sender rate is based on a packet loss ratio (fig. 9 step #910: indicates that the transmission rate is decreased based on loss rate being high, by sending a message to server, fig. 4, fig. 11).

As per claims 16-20, they do not teach or further define over the limitation in claims 1-6 and 8. Therefore, claims 16-20 are rejected for the same reasons as set forth in claims 1-6 and 8.

3. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being obvious over Klemets et al. (hereinafter Klemets, U. S. Patent No. 5,918,002) in view of Gerendai et al. (hereinafter Gerendai, U. S. Patent No. 6,629,285 B1).

As per claim 9, Klemets discloses a method for exchanging a plurality of messages between a server and a client over a communication link to support congestion control there between, the method comprising the steps of: transmitting a plurality of data packets to said client (col. 2 L40-48, col. 6 L3-5); transmitting, by said client, a request for retransmission if one of said packet is lost (col. 11 L25-56, fig. 12 item #1250); calculating by said client a round trip time corresponding to a latency between sending a request packet for retransmission to said server and receiving the corresponding retransmission of said lost packet from said server (col. 11 L25-56); computing or determining a new sender rate based on a round trip-trip time corresponding to a latency between sending said response packet to said server (col. 6 L7-44, col. 6 L55 to 7 L60, col. 10 L60 to col. 11 L25, fig. 11) and including said new sender rate in the transmission of said response packet (fig. 5E item #552, fig. 5C item #537); successively transmitting a number of response packets responsive to the plurality of said data packets containing said new sender rate (col. 6 L7 to col. 7 L60, col. 8 L25-45, col. 10 L60 to col. 11 L25, fig. 4, fig. 5A item #514, fig. 5C item #537, fig. 5E item #552 and fig. 11); and adjusting by

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said server said new sender rate if said RTT is calculated more than a predetermined threshold value (fig. 11, col. 6 L3-19, col. 7 L3-6 and fig. 5A item #514), however Klemets does not disclose that a retransmission packet is a NACK packet (please note that the retransmission request packet of Klemets can be a NACK packet).

Gerendai, from the same field of endeavor explicitly discloses the process of sending a negative acknowledgement packet when the data packet is not received (fig. 3-4, col. 3 L26-48).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to incorporate the teaching of Gerendai as stated above with Klemets, in order to include negative acknowledgements.

One of ordinary skilled in the art would have been motivated because it is a well known concept of notifying the sender of the lost packets.

As per claim 10, Klemets discloses the process where RTT is determined according to the following steps: transmitting a first packet having a RTT sequence number to said server if one of said data packets is lost; receiving a second packet containing said lost packet in response to said first packet from said server; and calculating said RTT based on a time delay between said first packet and said second packet (col. 2 L49-60, col. 11 L26-55, fig. 12).

As per claim 11, Klemets discloses the process wherein said communication connection between said server and said client comprises at least one of a wireless communication link, a wired communication link, and the combination of a wired communication link and a wireless communication link (fig. 2-3).

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4. Claims 12-15 and 21-24 are rejected under 35 U.S.C. 103(a) as being obvious over Klemets et al. (hereinafter Klemets, U. S. Patent No. 5,918,002) in view of Gerendai et al. (hereinafter Gerendai, U. S. Patent No. 6,629,285 B1) and further in view of Mogul (U. S. Patent No. 6,560,243 B1).

As per claim 21, Klemets discloses a system for exchanging a plurality of messages between a server and a client over a communication link to support congestion control there between, the method comprising the steps: means for transmitting a plurality of data packets to said client (col. 2 L40-48, col. 6 L3-5); means for transmitting, by said client, a request for retransmission if one of said packet is lost (col. 11 L25-56, fig. 12 item #1250); means for calculating by said client a round trip time corresponding to a latency between sending a request packet for retransmission to said server and receiving the corresponding retransmission of said lost packet from said server (col. 11 L25-56); means for computing or determining a new sender rate based on a round trip-trip time corresponding to a latency between sending said response packet to said server (col. 6 L7-44, col. 6 L55 to 7 L60, col. 10 L60 to col. 11 L25, fig. 11) and including said new sender rate in the transmission of said response packet (fig. 5E item #552, fig. 5C item #537); means for successively transmitting a number of response packets responsive to the plurality of said data packets containing said new sender rate (col. 6 L7 to col. 7 L60, col. 8 L25-45, col. 10 L60 to col. 11 L25, fig. 4, fig. 5A item #514, fig. 5C item #537, fig. 5E item #552 and fig. 11); and means for adjusting by said server said new sender rate if said RTT is calculated more than a predetermined threshold value (fig. 11, col. 6 L3-19, col. 7 L3-6 and fig. 5A item #514), however Klemets does not disclose a means for including a new sender rate in the transmission of said Nack.

Gerendai, from the same field of endeavor explicitly discloses the process of sending a negative acknowledgement packet when the data packet is not received (fig. 3-4, col. 3 L26-48).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to incorporate the teaching of Gerendai as stated above with Klemets, in order to include negative acknowledgements.

One of ordinary skilled in the art would have been motivated because it is a well known concept of notifying the sender of the lost packets.

However, Klemets in view of Gerendai does not disclose a means for including a sender rate in the transmission of said NACK.

Mogul, from the same field of endeavor, discloses including in a response packet (i.e. an ACK packet: note that the ack and nack packet have similar content except that ack notifies the sender of the received packet and nack notifies the sender of the lost packet) a new transmission rate (fig. 5 and col. 2 L1-13, col. 10 L30-39).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Klemets in view of Gerendai in view of Mogul, in order to include new sender rate in the transmission of nack, since Mogul teaches the process of including the sender rate in the ack packet (because contents of the ack and nack packets are similar except the one mentioned above. So modifying Mogul to include a sender rate in a nack packet is obvious because Mogul discloses an ack packet with a sender rate).

One of ordinary skilled in the art would have been motivated because it would have employed a mechanism for controlling the senders rate for transmitting the subsequent data

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packets (Mogul, col. 2 L43-52). It would have also enabled a receiving system to achieve its own bandwidth allocation policy among multiple sources (Mogul, col. 1 L51-55).

As per claims 12-14, 22-24 they recite the same limitations as in claims 4-6. Therefore claims 12-14, 22-24 are rejected for the same reasons as set forth in claims 4-6.

As per claim 15, it does not teach or further define over the limitations in claim 21. Therefore claim 15 is rejected for the same reasons as set forth in claim 21.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being obvious over Klemets et al. (hereinafter Klemets, U. S. Patent No. 5,918,002) in view of Mogul (U. S. Patent No. 6,560,243 B1), and further in view of Gerendai et al. (hereinafter Gerendai, U. S. Patent No. 6,629,285 B1).

As per claim 7, Klemets in view of Mogul explicitly discloses the process of sending a control action packet indicating the transmission of said new sender rate at said server (Klemets, fig. 5E, col. 6 L35-40, col. 7 L3-5 and col. 10 L60-63) and the process of sending an acknowledgement packet including a new sender rate (Mogul, fig. 5), however Klemets in view of Mogul does not explicitly disclose the process wherein the response packet is negative acknowledgement packet including a sender rate.

Gerendai, from the same field of endeavor explicitly discloses the process of sending a negative acknowledgement packet when the data packet is not received (fig. 3-4, col. 3 L26-48).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Klemets in view of Mogul and further in view of Gerendai, in order to send a negative acknowledgement packet including a sender rate, since Gerendai

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discloses the process of sending a negative acknowledgement and Mogul discloses an ACK packet with sender rate.

One of ordinary skilled in the art would have been motivated because it is a well known concept of notifying the sender of the lost packets and further it would have employed a mechanism of controlling the sender rate for transmitting the subsequent data packets (Mogul, col. 2 L1-13).

#### **Additional References**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Le et al., U. S. Patent No. 6,882,637 B1.
- b. Waclawsky et al., U. S. Patent No. 6,628,610 B1.
- c. Ghanwani et al., U. S. Patent No. 6,400,686 B1.
- d. Miller et al., U. S. Patent No. 6,137,779.
- e. Uemura et al., U. S. Patent No. 6,243,392 B1.

#### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAMAL B. DIVECHA whose telephone number is 571-272-5863. The examiner can normally be reached on Increased Flex Work Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung can be reached on 571-272-3939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kamal Divecha  
Art Unit 2151  
February 18, 2006.



**ZARNI MAUNG**  
**SUPERVISORY PATENT EXAMINER**